SIGGRAPH 2002

Recreating the Past

Alan Chalmers Kate Devlin
Paul Debevec Philippe Martinez
Duncan Brown Greg Ward

SIGGRAPH 2002

Recreating the Past

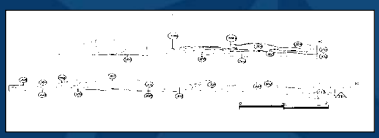
Representation and Interpretation

Kate Devlin
Duncan Brown

Representation and Interpretation

- Archaeological illustration
- The idea of realism
- Representing for a purpose
- Misinterpretation
- Setting standards
- Developing new hypotheses

Recording sites



Archaeological Representation: a history

- Medieval drawings of archaeological sites
- Antiquarian interest during the Renaissance
- Systematic illustration established in C18
- Archaeology becomes a discipline in C19
- Potential of photography (especially aerial) realised after WWI
- CAD developed in 1970s
- 3D computer visualisation begins in 1980s
- GIS in use in archaeology from 1980s onwards
- VRML established in 1990s

The present...

Multi-sensory and mixed reality applications:

Physical and perceptual realism, AV displays, total immersion (CAVE), shaderlamps

Visualising the data

From dataset → wireframe → rendering

Case Study: Stonehenge

Stonehenge, World Heritage Site, Wiltshire, UK.

Photographer: Ian Britton ©FreeFoto.com

Case Study: Depicting Stonehenge

Fourteenth century through to the present day

Terms and Concepts

- Reconstruction – an objective rebuilding
- Representation – a subjective interpretation
- What do we mean by 'realism'?
- Virtual Reality vs. hyperreality

Defining realism

- Everyone has their own version of reality – we bring our own years of experience to all that we view.
- Perceptual realism: when a generated scene evokes the same response as the original scene?

The tangible referent

We try to emulate a 'tangible referent'.

PROBLEM: we do not have a reality with which to compare our scenes.

How do we choose which aspects of a multi-faceted site to represent?

Context

Representations must be placed in context:

- Temporal
- Social
- Emotional

Representing for a purpose

- FOR THE ARCHAEOLOGIST – establishing spatial relationships, investigating new hypotheses
- FOR THE COMPUTER SCIENTIST – new graphics techniques
- FOR ADVERTISING – PR for companies
- FOR THE PUBLIC – educational, entertainment

Misinterpretation

- A single site can be interpreted in many different ways (e.g. Dewlish Roman villa project).
- We see what we want to see – our synthesised scenes work a bit like Rorschach inkblot tests.
- The decision-making process that led to a particular interpretation needs to be documented.

Setting standards

- METADATA – information about information. Need produce a standard format and standard input.
- PROVIDING ALTERNATIVES – offering more than a single interpretation. Need ways to present alternative representations.
- PRESERVING INFORMATION – keeping data accessible. Beware the advances of technology!

Developing new hypotheses

Computer graphics offers us a chance to test ideas in a safe and controlled manner.

We are no longer limited to visualising data in two dimensions.

We can recreate past environments and change the variables.

Making it meaningful

We must consider:

- The questions that we want answered
- Context
- Purpose
- Target audience
- Supporting information

...in order for our images to be useful.